

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of forming a complex between a prion protein and a prion protein binding material in a sample comprising contacting the sample with the prion protein binding material under conditions allowing formation of the complex between the prion protein and the prion protein binding material, wherein the prion protein binding material comprises a polymer matrix that binds specifically and selectively to the prion protein, and wherein the polymer matrix is an affinity resin.

2. (Previously Presented) The method of claim 1, further comprising detecting the complex prior to a separation process from the sample, after a separation process from the sample, or both.

3-4 (Cancelled)

5. (Previously Presented) The method of claim 1, wherein the polymer matrix is attached to a functional group comprising a positively charged group, a negatively charged group, an uncharged group, or a combination thereof.

6. (Previously Presented) The method of claim 5, wherein the functional group is an amine group, a sulfite group, a sulfonyl group, a tresyl group, an alkyl group, an aromatic group, a siloxane group, or a fluorinated group.

7-8. (Cancelled)

9. (Original) The method of claim 1, wherein the functional group is an amine group.

10. (Previously Presented) The method of claim 9, wherein the amine group is a primary amine group, a secondary amine group, a tertiary amine group, a quaternary amine group, or a combination thereof.

11. (Original) The method of claim 10, wherein the quaternary amine group is a diethylaminoethyl group, a dimethylaminoethyl group or a trimethylaminoethyl group.

12. (Previously Presented) The method of claim 5 wherein the functional group is selected from the group consisting of:

a) $\text{--OCH}_2\text{--CHOH--CH}_2\text{NH}_2$;

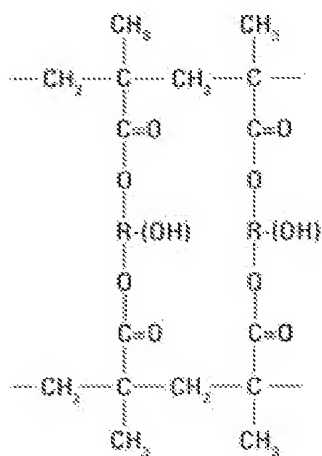
- b) $-\text{C}_6\text{H}_5$;
- c) $-(\text{CH}_2)_3-\text{CH}_3$;
- d) $-\text{CH}_2-\text{CH}_2-\text{N}^+\text{H}(\text{C}_2\text{H}_5)_2$;
- e) $-\text{SO}_2-\text{CH}_2-\text{CF}_3$;
- f) $-\text{CH}_2-\text{CH}_2-\text{N}^+\text{H}(\text{CH}_3)_2$;
- g) $-\text{CH}_2-\text{CH}_2-\text{N}^+(\text{CH}_3)_3$; and
- h) $-\text{SO}_3^{2-}$.

13. (Previously Presented) The method of claim 1 wherein the polymer matrix comprises polymethacrylate, methacrylate, or a combination thereof.

14. (Currently amended) The method of claim 1, wherein the polymer matrix comprises a ~~FRACTOGEL™ EMD, TOYOPEARL™, or TSK-GEL™~~ polymer matrix is in the form of

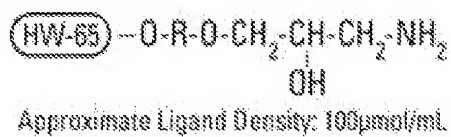
(i) a porous, beaded methacrylate resin material derivatized with hydrophilic linear polymer chains; or

(ii) a porous, beaded methacrylate resin material derivatized with hydroxylic functionalities, having the structure:



Note: R = Hydroxylated Aliphatic Group .

15. (Currently amended) The method of claim 13, wherein the polymer matrix comprises ~~TOYOPEARL™ AMINO-650~~ is a porous beaded methacrylate resin material derivatized with hydrophilic spacer chains terminating in a primary amino group, having the following chemical structure:



where HW-65 is the bead comprising a mean particle size of 65 µm and a mean pore size of 1000Å.

16. (Original) The method of claim 1 wherein the prion protein is PrPc, PrPsc, PrPr or PrPres.

17. (Previously Presented) The method of claim 1, wherein the prion binding material is in a chromatography column, on a membrane, fiber, bead, impregnated into a non-woven mesh, coating a fiber, contained within a filter housing placed in a membrane, filter, column, bead, non-woven mesh, or a combination thereof.

18. (Original) The method of claim 1, wherein the sample is a biological sample, a food product, an environmental sample, or a water sample.

19. (Original) The method of claim 18, wherein the biological sample is derived from a human or an animal.

20. (Original) The method of claim 19, wherein the animal is a bovine, an ovine, a porcine, an equine, a murine or a Cervidae animal.

21. (Original) The method of claim 1 wherein the prion protein is a human, bovine, ovine, porcine, equine, murine, or a Cervidae animal prion protein.

22. (Original) The method of claim 18, wherein the biological sample is a blood-derived sample; a brain derived sample; a bodily fluid sample; a collagen extract; a gland extract, a tissue homogenate or extract.

23. (Original) The method of claim 22, wherein the bodily fluid is blood, plasma, serum, cerebrospinal fluid, urine, saliva, milk, ductal fluid, tears, or semen.

24. (Original) The method of claim 22, wherein the blood-derived sample is a platelet concentrate, a plasma protein preparation, an immunoglobulin preparation, a plasma fractionation intermediate, albumin preparation, a fibrinogen preparation, a factor XIII preparation, a thrombin preparation, a factor VIII preparation, a von Willebrand factor preparation, a protein C preparation, or an activated protein C preparation.

25. (Original) The method of claim 1, wherein the sample is a pharmaceutical composition, a therapeutic composition, a cosmetic composition, food, or a nutritional supplement.

26. (Original) The method of claim 18, wherein the biological sample is gelatin, jelly, milk or dairy product, collagen, or infant formula.

27. (Original) The method of claim 18, wherein the biological sample comprises serum albumin.

28. (Original) The method of claim 27, wherein the serum albumin is a human serum albumin or an animal serum albumin.

29. (Original) The method of claim 27, wherein the sample comprises up to approximately 50% serum albumin by weight.

30. (Original) The method of claim 27, wherein the sample comprises from approximately 5% to approximately 25% serum albumin by weight.

31. (Previously Presented) The method of claim 5, wherein the prion protein binding material further comprises a spacer connecting the polymer matrix and the functional group.

32. (Original) The method of claim 31, wherein the spacer is 20 atoms in length or less.

33. (Original) The method of claim 31, wherein the spacer is 5 to 10 atoms in length.

34-49 (Cancelled)

50. (Previously Presented) The method of Claim 5, wherein the functional group comprises a hydrophilic group, a hydrophobic group, an amphiphilic group, or a combination thereof.

51. (Previously Presented) The method of Claim 1, wherein the binding material comprises two or more binding materials having the same or different functional groups and the samples are contacted with the two or more binding materials simultaneously or in succession.

52. (Previously Presented) The method of Claim 2, wherein the separation process comprises chromatography, solid support, membrane separation, reactor separation, magnetic separation, immunoseparation; colloidal separation, or a combination thereof.

53. (New) The method of Claim 1, wherein the polymer matrix is not an ion exchange matrix.

54. (New) The method of Claim 5, wherein the polymer comprises a polymeric backbone covalently attached to the functional group.